



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore - 641 107

AN AUTONOMOUS INSTITUTION

Accredited by NBA - AICTE and Accredited by NAAC-UGC with 'A' Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## 19CH101– ENGINEERING CHEMISTRY

### Unit-1 WATER AND ITS TREATMENT

#### WATER

Water is made up of hydrogen and oxygen, and it exists in gaseous, liquid, and solid states. Water is one of the most plentiful and essential compounds, occurring as a liquid on Earth's surface under normal conditions, which makes it invaluable for human uses and as plant and animal habitat.

Water is the most important compound for the existence of human beings, animals and plants and occupies a unique position in industries. About 75% of the earth's surface is occupied by water. The main sources of water are surface water- rain, rivers and lakes, sea water and underground water- wells and springs etc.

#### CHARACTERISTICS OF WATER:

##### Unique Characteristics:

1. Water is polar in nature.
2. It is a good solvent for the ionic compounds and it dissolves almost all substances (solid, liquid or gas). Hence, it is known as universal solvent.
3. Has High Heat capacity
4. Has High heat of vaporization
5. The density of water is maximum at 4<sup>0</sup>C, which is equal to 1000 kg m<sup>-3</sup>. It is Less dense as a solid than as a liquid
6. It exists in three states ie., solid, liquid and gas. The solid form of water is known as ice. It exists only below 0<sup>0</sup>C. It exists as a liquid between 0 and 100<sup>0</sup> C and as gas (steam) above 100<sup>0</sup>C. Hence the boiling point of water is 100<sup>0</sup>C (373K) and freezing point is 0<sup>0</sup>C (273K).



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7. Pure water is a transparent, colourless, odourless and tasteless liquid.
8. Pure water is a bad conductor of electricity, but acidified water is an electrolyte.